REMARKS

Claim 1-8 and 10-18 are pending in the above-identified application.

Issues under 35 USC 102(b) and 103(a)

Claims 1, 5, 8 and 10-12 have been rejected under 35 USC 102(b) as being anticipated by Schrenk '820 (US 5,612,820).

Claims 2-4, 6, 7 and 13-18 have been rejected under 35 USC 103(a) as being unpatentable over Schrenk '820 in view of Arends '659.

These rejections are traversed based on the following reasons.

Distinctions over Cited References

The presently claimed invention is directed to a laminated film having a maximum light ray reflectivity for unpolarized light, such as natural light, of 25% or less in the wavelength range of 400 to 2,500 nm.

Schrenk '820 discloses a birefringent interference polarizer. It is asserted in the Office Action of July 21, 2009 that Figure 1 of Schrenk '820 indicates a reflectance of at most about 5% over the wavelength range shown, i.e. about 450 to 900 nm. Figure 1 of Schrenk '820 does, at first glance, appear to indicate that the reflectance units on the ordinate (vertical y-axis) of the graph indicate measurements at 1.0-9.0%, i.e. all below 10%. However, a closer review of the Schrenk '820 disclosure indicates that the units on the y-axis are not over a reflectance range of 1.0-9.0%, but in fact appear to represent a range of 10-90%. That is, the y-axis numbers "1.0", "3.0", "5.0", "7.0" and "9.0" actually represent percentage units that are ten times greater, i.e. they represent reflectance percentages of "10%", "30%", "50%", "70%", and "90%", respectively. This is explained in detail in the enclosed Declaration submitted under 37 CFR 1.132 (hereinafter the "Osada Declaration"). In summary, it is clear from the disclosure and context of Schrenk '820 that Figure 1 shows reflectance ranges over the indicated wavelength range for parallel and perpendicular to stretch of about 50% and about 30%, respectively. Thus,

Schrenk '820 fails to disclose or suggest the laminated film of the presently claimed invention which cannot exhibit a reflectivity for unpolarized light over 25%.

The Osada Declaration states that, taking into consideration the reflectance properties at the surface of an object and "Fresnel equations", it is evident that Schrenk '820 discloses a laminated film wherein reflectance properties will be affected by the polymer layers and the surrounding air. The equation for calculating the lowest Fresnel reflection value that is observed for incident light perpendicular to the surface is as follows:

$$\text{Fresnel Reflectance (\%)} = (nA-nB)^2 / (nA+nB)^2 * 100$$

wherein nA is the refractive index of medium A and nB is the refractive index of medium B. In Example 1 of Schrenk '820, the polymer constituting the surface of the film is polycarbonate or polystyrene and its refractive index is estimated to be at least 1.585 (i.e. 1.6 - 0.03/2). Because the refractive index of air is 1.0, the calculated Fresnel reflectance of the film of Example 1 of Schrenk '820 is approximately 5.12%. Note that this calculation result corresponds only to the reflectance at the surface of the film. Consequently, based on the above assumptions, it is theoretically impossible for the reflectance of the film of Example 1 of Schrenk '820 to fall below 5.0%. Therefore, the ordinate or the y-axis of Figure 1 of Schrenk '820 cannot be on a scale of 1.0-9.0%, since the depicted reflectance ranges would both fall well below 5.0% which is below the theoretically lowest value based on the Fresnel equations as discussed above.

Actually, as further explained in the Osada Declaration, it turns out that it is very likely the y-axis scale of Figure 1 of Schrenk '820 corresponds to 10-90% for several reasons. Schrenk '820 discloses at col. 9, lines 3-6 that, "As can be seen from the graph of FIG. 1, reflectance differences in the parallel and perpendicular planes over a wide range of wavelengths demonstrate that the film was functioning to polarize light." Thus, the question becomes whether the film of Example 1 of Schrenk '820 would function sufficiently as a light polarizer taking into account the most appropriate interpretation of the scale of the y-axis in Figure 1. The "polarization degree" of a light polarizer is an index of performance of the light polarizer at a wavelength of 575 nm, which is a wavelength wherein major reflectance deference is observed between the light parallel to stretch and the light perpendicular to stretch. The polarization

degree is calculated by the manner disclosed in Exhibit B (Optics, Eugene Hecht, Addison Wesley, 4th edition, 2002, pp. 115, 120, 121, and 351), which is enclosed. See paragraph 10 of the Osada Declaration. The film of Schrenk '820 is basically transparent as noted at col. 1, lines 66-67. Attempting to employ the labeled y-axis reflectance scale of 1.0-9.0%, the transmittance of the light parallel to stretch would be about 94.9 % (100 - 5.1%) and the transmittance of the light perpendicular to stretch would be about 97.8% (100 - 2.2%) in accordance with Figure 1. The polarization degree of the film in Figure 1 would be calculated to be only 0.015 (i.e. (97.8 - 94.9) / (97.8 + 94.9)). This calculated polarization degree is very low, and would be completely insufficient for one to conclude that the film would "function to polarize light" as stated in Schrenk '820. As described in Exhibit B above, 40% polarization is considered to be "partial polarization", and a polarization degree of 0% is simply "unpolarized". Thus, one skilled in the art upon reviewing the disclosure of a "polarizer" in Schrenk '820 would conclude that the Figure 1 y-axis refers to a scale of 10-90%, not 1.0-9.0%, since a polarizer that exhibited a polarization degree of about 5.0% or less simply would not function adequately as a polarizer. Therefore, taking into account a correct interpretation of Schrenk '820, it is clear that significant patentable distinctions exist over this reference.

Arends '659 also fails to disclose or suggest a laminated film having a maximum light ray reflectivity for unpolarized light, such a natural light, of 25% or less in the wavelength range of 400 to 2,500 nm, as in the presently claimed invention. Arends '659 fails to make up for the deficiencies of Schrenk '820 noted above. Thus, significant patentable distinctions exist between the present invention and both Schrenk '820 and Arends '659 such that the above rejections must be withdrawn.

It is submitted for the reasons above that the present claims define patentable subject matter such that this application should now be placed in condition for allowance.

If any questions arise in the above matters, please contact Applicant's representative, Andrew D. Meikle (Reg. No. 32,868), in the Washington Metropolitan Area at the phone number listed below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

Dated: November 23, 2009

Respectfully submitted,

By_____

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Enclosures: Osada Declaration under 37 CFR 1.132
Exhibit B (Optics, Eugene Hecht, Addison Wesley, 4th edition, 2002, pp. 115, 120, 121, and 351)